REMARKS

Claims 1 and 5-7 stand rejected under 35 U.S.C. 102(e) as being anticipated by Applicants' Admitted Prior Art (AAPA). Applicants respectfully traverse the rejection because AAPA fails to disclose (or suggest) all sides of the seal patterns facing sides of the one substrate as being interconnected along the edge of the one substrate, as recited in amended claim 1.

The Examiner cites AAPA in FIG. 4B as showing all sides of the dummy seal patterns facing sides of the one substrate as being interconnected. However, since the dummy seal patterns 98 are separated from one another, the three sides of one of the dummy seal patterns 98 facing the outer substrate 95 are not connected to the other three sides of the other dummy seal pattern 98 facing the outer sides of the substrate. That is, there is a gap between the dummy seal patterns 98 that prevents interconnection between the dummy seal patterns.

In contrast, as shown in FIG. 10A, for example, a second dummy seal pattern 73 interconnects the first dummy seal pattern 72. Although Applicants believe that AAPA fails to disclose interconnection between all side of the dummy seal patterns facing sides of the substrate, claim 1 is amended to further clarify that the interconnection occurs along the edge of the substrate. Support for this amendment can be found on page 24, line 26 to page 25, line 2 of Applicants' specification.

Applicants respectfully assert that the method recited in amended claim 1 has advantages over the AAPA. As disclosed during Applicants' discussion of AAPA on page 6,

line 25 to page 7, line 3 of Applicants' specification, there is a faulty adhesion problem that occurs between the sealant and the substrate 95 in the central portion of the substrate (portion enclosed by a dashed line in FIG. 4B). This problem is overcome by the present invention. That is, since the main seal patterns 71 individually enclose each of the plurality of display areas, and the first dummy seal patterns 72 individually enclose each of the plurality of main seal patterns, and all sides of the first dummy seal patterns facing sides of the substrate are interconnected along the edge of the substrate vacuum is maintained in the central portions of the panel when the panels are exposed to atmospheric pressure. Formation of the dummy seal patterns in this manner also enables pressure to be applied to the central portions of the display panel in a vertical direction with respect to the substrate. Therefore, adhesion of the sealant is improved in the central portions of the panel, which overcomes the problem of the AAPA. For these reasons, withdrawal of the §102 rejection of claim 1 and its dependent claims 5-7 is respectfully requested.

Claims 2-3 stand rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Park et al. (U.S. Patent No. 6,738,124). Applicants traverse the rejection for the reasons recited above with respect to the rejection of independent claim 1.

Park shows in FIG. 4B a plurality of main sealant patterns 700 that individually enclose each of a plurality of display areas, and a dummy sealant 800 that encloses all of the main sealant patterns 700. Park fails to disclose a plurality of dummy seal patterns that encircle the main sealant patterns 700 and are interconnected along an edge of the substrate

300. Therefore, Park fails to overcome the deficiencies of AAPA, as noted above. For at least this reason, withdrawal of the rejection of claims 2-3 is respectfully requested.

In addition to the above, claim 2 requires a plurality of main seal patterns to individually enclose each the plurality of display areas, and a plurality of first dummy seal patterns to individually enclose each of the plurality of main seal patterns. A second dummy seal pattern encloses all of the plurality of first dummy seal patterns. Each of these patterns are formed on the substrate.

AAPA, as shown in FIG. 4B, of the present application, discloses a plurality main signal patterns 96 individually enclosing each of a plurality of display areas and a plurality of dummy signal patterns 98 individually enclosing each of a plurality of main seal patterns 96, that are formed a substrate 95. However, Applicants do not believe that AAPA and Park, in combination, disclose or suggest another dummy seal pattern enclosing all of the plurality of the dummy seal patterns.

Park discloses that the dummy sealant is formed only to protect the main sealant. (See Col. 2, lns. 8-9). Park is silent regarding a dummy sealant protecting another dummy sealant. Moreover, in order for the cell cutting process disclosed in Park to become easy, the mask 950 is arranged in an overlapping region between the dummy sealant 800 and the scribing line, and UV rays are irradiated on the pair of substrates 200 and 300 (the panel) to cure the main sealant 700 and a dummy sealant 800 (see Col. 5, lns. 19-30). Accordingly, when the display panel of Park is exposed to atmospheric pressure, a difference of sealant conditions between the region that has been masked by the mask 950 (i.e., the region where

the sealant remains in a fluidic condition) and a region that has not been masked by the mask 950 (i.e., a region that the sealant has cured) results in faulty adhesion occurring between the dummy sealant 800 and the substrates 200 and 300. Thus, air enters inside the display panel from the dummy sealant 800.

Therefore, if AAPA and Park are combined, when the display panel is exposed to atmospheric pressure, faulty adhesion can occur between the dummy signal pattern 98 and the substrates of AAPA, and a downward force caused by the atmospheric pressure is applied to the inside of the main seal patter 96 of AAPA where a vacuum is maintained, but the downward force is not applied to the outside of the main seal pattern 96 where it has become atmospheric pressure. Therefore, a distortion of substrates in the vicinity of the main seal pattern 96 where the spacers are not provided can occur.

In contrast, the present invention has UV rays irradiated on the entire panel to cure the main seal patterns, the first dummy seal patterns and the second dummy seal pattern uniformly. Thus, when the display panel is exposed to atmospheric pressure, even if a faulty adhesion occurs between the first dummy seal pattern and the substrates, a vacuum is maintained inside the first dummy seal pattern by the second dummy seal pattern. This enables pressure to be applied to the entire inside of the first dummy seal pattern in a perpendicular direction with respect to the substrate. Thus, the occurrence of a distortion of substrates in the vicinity of the main seal pattern is impeded. Moreover, even if a faulty adhesion occurs between the second dummy seal pattern and the substrates, a vacuum is maintained inside the first dummy seal pattern. Therefore, occurrence of a distortion of the

substrates in the vicinity of the main seal pattern is impeded. Therefore, the present invention prevents distortion of substrates in the vicinity of the main seal pattern from occurring even if a faulty adhesion occurs and either the first dummy seal patterns or in the second dummy seal pattern, unlike the combination of AAPA and Park. For these additional reasons, withdrawal of the §103 rejection of claims 2-3 is respectfully requested.

Claim 4 stand rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Katsura (U.S. Publication No. 20010015786 A1). Applicants traverse the rejection because there is no motivation to combine the references since Katsura is not a method of manufacturing a liquid crystal display device by a one-drop-fill process.

AAPA discloses that the main seal patterns that enclose the display areas are formed on a substrate. In Katsura, however, a peripheral seal portion 303 is formed outside of the display pixel portion 305 on a substrate (see FIG. 3). Therefore, since the injection port 304 (the open portion) in Katsura is provided in the peripheral seal portion 303, the peripheral seal portion 303 does not enclose the display pixel portion 305.

Moreover, AAPA discloses a method of manufacturing a liquid crystal display device by a one-drop-fill process. That is, the liquid crystal is dropped to the inside of the main seal pattern on one of a pair of substrates. In contrast, Katsura teaches a method of manufacturing a liquid crystal display device by a vacuum injection process that has the liquid crystal injected into the sealant (e.g., the peripheral seal portion 403 in FIG. 4) between the pair of the substrates through the open portion (e.g., the injection port 404 in FIG. 4). Alternatively, Katsura teaches a method of manufacturing a liquid crystal display device by a

dripping injection process that has the liquid crystal injected into the sealant between a pair of substrates through an open portion by using a dispenser (e.g., the liquid crystal dripping dispenser 612 in FIG. 6). (See paragraphs [0002] and [0025]. Katsura fails to teach a method of manufacturing a liquid crystal display device by using a one-drop-fill process.

AAPA is different from Katsura in the shape of the main seal patterns and in the process that the liquid crystal is supplied to the inside of the main seal patterns. For this reasons, Applicants believe that there is no motivation to combine AAPA and Katsura. Withdrawal of the §103 rejection of claim 4 is respectfully requested.

For all of the foregoing reasons, Applicants submit that this Application is in condition for allowance, which is respectfully requested. The Examiner is invited to contact the undersigned attorney if an interview would expedite prosecution.

Respectfully submitted,

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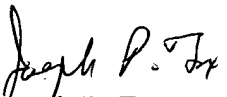
By: 
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